[Claims]

Sub B1

~~1. A method for~~ manufacturing a semiconductor, comprising:

a first step of forming an etching stop layer on a first semiconductor layer; and

a second step of forming a second semiconductor layer made of a group III-V compound semiconductor on the etching stop layer,

wherein an etching rate for the etching stop layer by dry etching is less than an etching rate for the second semiconductor layer.

2. The method for manufacturing a semiconductor of claim 1, wherein in the first step, the etching stop layer is formed by using a group III-V compound semiconductor containing aluminum.

3. The method for manufacturing a semiconductor of claim 2, wherein:

the second semiconductor layer contains aluminum; and

in the first step, the etching stop layer is formed so that an aluminum composition of the etching stop layer is greater than an aluminum composition of the second semiconductor layer.

4. The method for manufacturing a semiconductor of claim 1, wherein in the first step, the etching stop layer is a super lattice layer obtained by alternately layering $Al_xGa_{1-x}N$ (where 0. x. 1) and $Al_yGa_{1-y}N$ (where 0. y. 1 and $x \neq y$) on one another.

5. The method for manufacturing a semiconductor of claim 4, wherein the etching stop layer is a reflector mirror having a thickness such as to reflect light whose wavelength is equal to or greater than about 360 nm and less than or equal to 500 nm.

6. The method for manufacturing a semiconductor of claim 1, wherein the etching stop layer is made of an element included in a group III-V nitride semiconductor and an impurity element that determines a conductivity of the group III-V nitride semiconductor.

7. The method for manufacturing a semiconductor of claim 6, wherein the element included in the group III-V nitride semiconductor is nitrogen, and the impurity element is silicon.

8. The method for manufacturing a semiconductor of claim 6, wherein the impurity element is magnesium.

9. The method for manufacturing a semiconductor of claim 8, wherein an impurity concentration of magnesium is about $1 \times 10^{20} cm^{-3}$ or more.

10. The method for manufacturing a semiconductor of claim 1, wherein:

the method further comprises a third step of performing a dry etching process on the second semiconductor layer, before the second step; and

in the third step, the etching process on the second semiconductor layer is stopped upon detecting the etching

stop layer.

11. The method for manufacturing a semiconductor of claim 10, wherein the third step includes the steps of:

irradiating a surface of the second semiconductor layer with a laser beam;

receiving photoluminescence light emitted through excitation by the laser beam; and

assuming that a surface of the etching stop layer has been exposed by detecting a change in a wavelength of the received photoluminescence light.

12. The method for manufacturing a semiconductor of claim 10, wherein the third step includes the steps of:

irradiating a surface of the second semiconductor layer with X rays;

measuring a diffraction angle of the X rays; and

assuming that a surface of the etching stop layer has been exposed by detecting a change in the diffraction angle of the X rays.

13. A method for manufacturing a semiconductor device, comprising the steps of:

sequentially forming a first semiconductor layer including an active layer, an etching stop layer, and a second semiconductor layer made of a group III-V compound semiconductor; and

selectively dry-etching the second semiconductor layer,

wherein an etching rate for the etching stop layer by dry etching is less than an etching rate for the second semiconductor layer.